EOSDIS IV&V
Monthly Status Report

For the Period 10/1/95 to 10/31/95

(Deliverable 0203.4)

November 15, 1995

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1. PROGRAMMATIC INFORMATION

1.1 IV&V Project Organization Chart

Exhibit 1-1 illustrates the current organizational structure of the EOSDIS IV&V team. The approximate number of personnel assigned to each technical task is also indicated.

1.2 Overview of Work Being Performed

a) Key Recent Accomplishments

- **Programmatic**

  - Worked with COTR in replanning the GFY96 staffing profiles and budgets for each task.

  - Evaluated proposals for the Independent Cost Evaluation (ICE) of the EOSDIS. Conducted two briefings to NASA to present findings and make recommendations. Anticipate task kickoff in mid to late November.

  - Engaged in preliminary discussions with Bruce Barkstrom regarding support for developing his Community Cost Model (CCM) for the EOSDIS. Developed initial staffing profile and timetable.

  - Witnessed IR-1 tests being performed at HAIS, and provided a metric identifying the time to complete all IR-1 tests based on historical trend.

  - Attended FOS Release A/B CDR, generating 12 Technical Analysis Memoranda (TAMs) in five focus areas (requirements, design, eternal interface, operations scenario, test) and 2 RIDs on 305 Specifications.

  - Attended SCDO Release B IDR. In process of creating 3 TAMs and 1 RID pertaining to modeling.

- **Technical**

  - Under Task 4B, published new baseline of the EOSDIS IV&V Homepage and EOSDIS Ground System (EGS) Integration and Test (I&T) Homepage. Also, provided guidelines for tracking Technical Analysis Memorandum (TAM) issues within the Issue/Discrepancy Handling System (IDHS).

Exhibit 1-1: Org Chart (Landscape)

- Under Task 5B, delivered SCDO IR-1 Requirements Criticality Assessment TAM, FOS A/B Requirements Traceability TAM, and TAM comparing Requirements Specifications to the RTM baseline.

- Under Task 6, submitted three TAMs for FOS Release A/B CDR assessing requirements to design traceability, Software through Pictures (StP) repository, and database design specifications. Also, began witnessing IR-1 tests at HAIS.

- Under Task 9B, analyzed four FOS ICDs and delivered four TAMs in support of FOS CDR. Also, began analyzing five SCDO Release B ICDs in support of SCDO Release B IDR.

- Under Task 10C, delivered Baseline version of the IR-1 Component Acceptance Test Master Test Plan. Also, completed TAMs supporting FOS CDR and Release B IDR.

- Under Task 11A, delivered review copy of SI&T IR-1 Detailed Test Plan and continued updating the baseline for the SI&T Master Plan.

- Under Task 13, developed strategy for Phase III of Version 0 performance assessment. Also, used the X-Runner test tool at GSFC to execute V0 scripts and evaluated X-Runner capabilities to execute new scenarios.

Additional status information on each of the technical tasks can be found in Appendix A.

b) New/Proposed Task Assignments

- Propose that NASA establish a new task which will enable IV&V to coordinate, facilitate, and support the activities associated with the Independent Cost Evaluation (ICE) of the EOSDIS as well as the Barkstrom Community Cost Model (CCM). Plan to submit revisions to draft SOW by mid November.

1.3 Overview of Schedule Status

Exhibit 1-2 presents the latest, high level milestone chart (i.e., dated November 14, 1995) for all technical tasks assigned on the EOSDIS IV&V contract. In addition, Exhibit 1-3 lists in chronological order the deliverables/milestones associated with the contract for both the current month and the next month, as well as the status of each deliverable/milestone.

Exhibit 1-2: Milestone Chart (Landscape)

Expected Date Due	Dependency	Milestone/ Deliverable	Task #	Status*	Comments
10/6/95		**ISE M&O Status Report**	**4B**	**C**	**Submitted on time.**
10/6/95		**IR-1 Component Acceptance Test Master Test Plan (Baseline)**	**10C**	**C**	**Submitted on time.**
10/6/95		**SI&T IR-1 Detailed Test Plan (Review)**	**11A**	**C**	**Submitted on time.**
10/13/95		**EOSDIS Test Version Component Acceptance Test Plan for ECS IR-1 (Review)**	**10C**	**C**	**Submitted on time.**
10/16/95	Rel A CDR + 2 Months	Release A IRVVP (Final)	6	D	Due to rescheduling of ECS design reviews and refocus on detailed design analyses, document delivery is TBD.
10/30/95		**Updated IADB and Data Dictionary for Test Version and Version 1 Supporting Documents**	**9B**	**C**	**Completed ahead of schedule on 10/23/95.**
11/3/95		**EOSDIS Test Version Component Acceptance Test Plan for ECS IR-1 (Baseline)**	**10C**	**C**	**Submitted on time.**
11/10/95	Rel B IDR + 1 Week	ECS Rel B IDR IV&V RIDs	6	IP	On schedule.
11/14/95		EOSDIS Test Version I&T Plan (Baseline)	11A	IP	
11/17/95		IR-1 Requirements Analysis TAMs (Total of 2)	5B	IP	
11/17/95		Release B IDR Design Analysis TAMs	6	IP	
11/30/95		ISE Element Users Guide - Draft	4B	IP	

* C = Completed, IP = In Process, O = Open, D = Delayed, CX = Canceled
<u>Note</u>: *Italics* indicates tasks that are not yet activated.

EXHIBIT 1-3: Status of Milestones/Deliverables

1.4 Performance Assurance Activities

- **Performance Assurance Activities**

    - Coordinated McCabe Toolset training held on October 3-5, 1995. This training focused on collecting metrics for large software development efforts and was attended by 15 people representing several NASA programs.

    - Registered for Sybase SQL Server system administration training to be held in Bethesda, MD, during the week of November 6, 1995. This training will be

attended by Fairmont personnel to ensure a fuller understanding of one of the core systems driving the IV&V Integrated Support Environment (ISE).

- Training of Object Modeling Technique (OMT) has been set up for the week of November 27, 1995. This course will be conducted by Lockheed Martin, the same company that provides OMT training to HAIS. The training is intended to help IV&V   personnel better assess the HAIS design and coding effort.

- Plans are underway for StP training in December. This training will be tailored to IV&V needs, focusing on StP model assessment and consistency checking. Since the training requires a large lab with terminals, negotiations are ongoing to secure the HAIS lab for the time period required.

- IV&V has attempted to coordinate training activities with HAIS in an ongoing effort to reduce costs to the Government. We have suggested that any relevant training activities at HAIS with available seats might be filled with IV&V personnel. Currently, IV&V has been granted one seat for the Object Oriented Database course to be given at HAIS beginning December 18, 1995.

1.5   Major Short Term Activities Planned

- **Program-wide Activities**

  - Revise and get approval on task SOW updates resulting from contract GFY96 replanning activities.

  - Initiate ICE and CCM activities (i.e., begin Task 7).

  - Participate in next Monthly Findings Meeting with ESDIS management.

  - Prepare materials for the upcoming EOSDIS Ground System (EGS) Status Review (ESR) scheduled for early December.

  - Complete SCDO Release B IDR assessment and submit associated TAMs and RIDs.

  - Begin tracking TAM recommendations/issues through the Issue/Discrepancy Handling System (IDHS). Provide a mechanism for the periodic review and resolution of these recommendations/issues.

  - Support Dr. Steve Easterbrook in his assessment of IV&V effectiveness by participating in interviews and making available any requested materials.

- **Task-specific Activities**

  - For Task 4B, release draft of ISE User's Guide containing information on the IDHS, ARDB, and TMDB applications. Also, populate on-line TAM library (limited access).

  - For Task 5B, support SCDO Release B IDR by submitting three TAMs on requirements analysis, traceability analysis, and specification analysis.

  - For Task 6, support SCDO Release B IDR by submitting three TAMs on Planning Subsystem (PLS) design, Data Processing Subsystem design, and GSFC DAAC design. Also, increase IR-1 test witnessing support.

  - For Task 9B, complete TAMs on ICDs pertaining to Release B IDR.

  - For Task 10C, continue work on detailed test procedures, and involve additional personnel in test witnessing of IR-1 tests at HAIS.

  - For Task 11A, finish revisions to update SI&T Master Plan.

  - For Task 13, use X-Runner to execute V0 test scenarios. Test the WWW interface for the V0 IMS.

1.6   Key Long Range Plans/Schedules

The IV&V team will support the activities and milestones identified in Exhibit 1-2. Emphasis will be placed on those activities that are on the critical path to support the on-time launch of the spacecraft. Such activities include supporting System Integration, performing Interface and Integration Testing, and conducting System Certification.

Based on recent budget constraints and new direction from NASA, the team will emphasize its System Integration and Test (SI&T) role and narrow its IV&V focus to those activities that support successful SI&T. Other IV&V functions will be secondary and will be prioritized based on available funding.

2.   FINANCIAL/CONTRACTUAL INFORMATION

This Section

Has Been Removed

Due to Proprietary Content.

APPENDIX A

TECHNICAL TASK STATUS INFORMATION

Task # 4B: IV&V Infrastructure and Tool Development

a) **Task Accomplishments**

- Submitted the Integrated Support Environment (ISE) Maintenance & Operations Status Report for the 2-month period of August and September.

- Published the development baseline of the EOSDIS IV&V Homepage and EOSDIS Ground System (EGS) Integration and Test (I&T) Homepage for review and feedback.

- Modified the Technical Analysis Memorandum (TAM) instructions to include guidelines for extraction of issues for inclusion in the Issue/Discrepancy Handling System (IDHS).

- Configured a PC at GSFC to provide on-line access to the Automated Requirements Database (ARDB) and Test Management Database (TMDB) database information. Connectivity to the databases was achieved; however, connection attempts via the ARDB and TMDB applications were unsuccessful due to what is believed to be a Gupta SQLWindows problem.

- Updated the "categories" field of the Issue/Discrepancy Handling System (IDHS) application for the FOS Release A/B CDR.

- Incorporated several modifications to the TMDB tool, including updating the application to accommodate RTM/Oracle schema changes, and annotating the test case and test procedure panels.

b) **Issues/Concerns**

- None.

c) **Subcontractor Performance**

- CTA performance during this reporting period was very good. They were directly responsible for maintenance and operations activities associated with the IADB tool.

- EWA performance during this reporting period was very good. They supported system administration activities for the Fairmont facility as well as on-going ARDB analysis/prototyping activities. They also supported the development of the EOSDIS IV&V Homepage maintenance utility and the EGS I&T Homepage.

d) **Planned Activities**

- Publish the new EOSDIS IV&V and EGS I&T homepages on the WWW beginning November 1, 1995.

- Release a draft of the ISE User's Guide. This document will contain user information for the IDHS, ARDB, and TMDB applications.

- Update the IDHS database based upon RID closure information from past CDR and IDR activities.

- Populate the TAM library that is a part of the EOSDIS IV&V Homepage. This library will be protected, requiring authorized approval before access is granted.

- Continue support (refinement, development, and maintenance) for the ARDB and TMDB client/server tools.

- Continue support for the IDHS Lotus Notes application.

- Continue development and maintenance for the EOSDIS IV&V Homepage and EGS I&T Homepage.

- Support program meetings and briefings as required.

Task # 5B: Requirements Analysis and Traceability

a) Task Accomplishments

- Delivered SCDO IR-1 Requirements Criticality Assessment TAM, on October 6, 1995, one month ahead of schedule.

- Delivered FOS A/B Requirements Traceability TAM on October 23, 1995.

- Completed Requirements Specification CDRL review (304) and comparison to RTM baseline. Delivered TAM on October 31, 1995.

- Raised and helped resolve the IR-1 RTM criticality assignment issue (mission critical change to essential) in RTM. Also, raised and helped resolve IR-1 requirements allocation issues (requirements vs. objectives).

- Defined and presented equipment upgrade recommendations to support increased Release B modeling activity and upcoming shared I&T equipment demands.

- Provided Requirements Assessment to support FOS review.

- Ran RTM trace reports to support general IV&V analysis.

- Provided final inputs to Task 5 Modeling SOW revision for performance period October 1995 to June 1996.

b) Issues/Concerns

- The tape of the RTM baseline from HAIS could not be read due to a bad header. To avoid undue delay, IV&V analyzed an FTP copy of the baseline. However, the faulty tape has become an open credibility issue, since HAIS believes that the tape was entirely functional when it left their facility. Ted Ackerson has authorized a tape analysis by an outside vendor to determine the cause of the problem.

- Support of the FOS CDR and Release B IDR will result in a delay of the final IR-1 Trace Analysis TAM. Requirements Manager has been advised.

- This task is understaffed by one due to a directed hold on hiring. As a result, it is likely that the detailed requirements quality and testability analysis TAMs for Release A and B will be delayed. The TAMs will be delivered within SOW due dates, but later than desired in order to best support FOS CDR and Release B IDR.

c) Subcontractor Performance

- Subcontractor performance has been very good.

d) Planned Activities

- Support Release B IDR:

  - Complete Release B Requirements to Release B Analysis TAM.
  - Complete Release B Requirements Traceability Analysis TAM.
  - Complete Release B Requirements Specification (304) Analysis TAM.
  - Conduct CCR and document reviews.
  - Implement ARDB use on Release B requirements analysis subtasks.

- Deliver proposed volume/processing requirements changes to Chris Daly resulting from rescheduling due to Release B IDR priorities.

- Support program meetings and briefings as required.

Task # 6: ECS Development Analysis

a) Task Accomplishments

- Completed analysis of PDPS/Workbench design in support of Release A delta CDR conducted in September. Submitted one RID and a TAM documenting issues and findings.

- Attended FOS Release A/B CDR presentations. Completed and submitted three TAMs on assessments of requirements to design traceability, Software through Pictures (StP) repository, and the database design and schema specification. Also, submitted two related RIDs.

- Attended the first two SCDO Release B IDR presentations. Began analysis of Planning and Data Processing subsystems.

- Completed review of IR-1 Test Plans and Procedures document. Submitted TAM documenting findings on 10/2/95.

- Completed defining preliminary IV&V test witnessing process (checklists, weekly report formats, internal test results reporting) in coordination with ESDIS.

- Attended technical interchange meeting with ESDIS and HAIS to discuss HAIS' IR-1 test process and IV&V test witnessing process.

- Began witnessing IR-1 tests at HAIS. Witnessed a total of 22 tests during the month of October.

b) Issues/Concerns

- None.

c) Subcontractor Performance

- Subcontractor performance has been excellent.

d) Planned Activities

- Complete SCDO IDR design analyses. Submit three TAMs on the following:

  - Planning Subsystem (PLS) Design Analysis

  - Data Processing Subsystem Design Analysis

  - GSFC DAAC Design Document Review

- Continue IR-1 test witnessing. Increase Task 6 level of support in this area by shifting assigned Task 6 resources from design analysis onto this activity upon completion of SCDO IDR design analyses.

- Provide inputs to Task 6 SOW in coordination with COTR.

- Support other program meetings and briefings as required.

Task # 9B: Key Interface Analysis

a) Task Accomplishments

- In support of FOS CDR, analyzed four FOS ICDs and delivered four TAMs. This included a cross-document review on security, configuration management/work-off plan tracking, and data flows.

- In support of SCDO Release B IDR, began analyzing five SCDO Release B ICDs. These reviews include analysis of new Release B content plus checking for correction of problems identified in the Release A versions of the documents.

- Wrote a TAM to document interface design evaluation methodologies and recommendations.

- Developed briefing charts for customer pertaining to IRD-ICD problem trace analysis.

- Attended full FOS CDR presentation (3 days).

- Attended portions of the Release B IDR relevant to external interfaces.

b) Issues/Concerns

- None.

c) Subcontractor Performance

- CTA is the task lead for this effort. Their performance has been good.

d) Planned Activities

- Provide NASA with a presentation of the interface design evaluation methodology documented in TAM-09-031.

- Obtain and respond to customer's direction on integration of IADB with CSC database.

- Complete TAMs for Release B IDR ICDs.

- Review GSFC, MSFC, LARC, ORNL and ASF Design Specs, and the ECS-EDC DAAC ICD for information purposes.

- Support other program meetings and briefings as required.

Task # 10C: EOSDIS Independent Component Acceptance Test

a) Task Accomplishments

- Delivered baseline version of IR-1 Component Acceptance Test Master Test Plan on October 6, 1995. Also delivered review version of EOSDIS Test Version Component Acceptance Test Plan for ECS IR-1.

- Reviewed FOS HAIS Test Plan and Procedures and delivered to lead reviewer on November 2, 1995.

- Reviewed comments against Component Test Master Test Plan and prepared document revisions for final plan submittals prior to procedures.

- Completed TAMs in support of FOS CDR and Release B IDR documentation reviews.

- Continued test witnessing process at HAIS; considerable effort spent developing and fine tuning weekly report and internal test documentation and tracking activities.

- Developed Task 10 CTR for GFY96 based on preliminary budget estimates for staffing and travel.

b) Issues/Concerns

- Task staffing needs to be increased and managed as IR-1 component testing is planned.

c) Subcontractor Performance

- Subcontractor performance has been good; however, continued emphasis should be placed on staff planning and time scheduling.

d) Planned Activities

- Continue work on detailed test procedures. Deliver preliminary document in December.

- Involve additional personnel in the detailed test witnessing activities at HAIS across IR-1 tests and test status meetings.

- Support program briefings as required.

Task # 11A: EOS Ground System Integration and Test

a) Task Accomplishments

- Continued work on revision to SI&T Master Plan (Baseline) update. Delivery is still TDB, due to extended illness of key staff member.

- Delivered review version of SI&T IR-1 Detailed Test Plan on October 6, 1995.

- Continued work to close Action Items from DAAC One-on-One Meetings.

- Supported document reviews and numerous platform and related meetings related to overall integration and test effort.

- Supported ongoing analysis of joint test efforts, and impacts to schedule resulting from HAIS introduction of "test transition" period between IR-1 and Release A.

- Developed and delivered CTR for Task 11 for GFY96.

b) Issues/Concerns

- Task staffing needs to be reviewed once funding is resolved.

c) Subcontractor Performance

- Subcontractor performance has been good; however, continued emphasis should be placed on staff planning and time scheduling.

d) Planned Activities

- Continue addressing plans for revised IR-1 and Release A schedules, as well as Test Version I&T Procedures.

- Finish revisions to update SI&T Master Plan.

- Finish revisions to update SI&T IR-1 Test Plan to incorporate joint testing activities.

- Finish identifying tool needs for Task 11 I&T activities.

- Review use of TMDB and TDM tool for Task 11 support. Compete development of TMDB and transition resources to other ongoing I&T activities.

- Support program briefings as required.

Task # 13: IV&V Special Studies

a) Task Accomplishments

- Developed strategy for Phase III of Version 0 performance assessment.

- Compiled a list of error conditions that require X-Runner exception handling.

- Experimented with X-Runner's ability to measure time delays.

- Developed new scenarios for inventory, directory, and integrated browse for Phase III of the Version 0 analysis. These scenarios will allow performance comparison across IMS servers as well as across IMS clients.

- Used the X-Runner test tool at GSFC to execute V0 scripts and evaluated X-Runner capabilities to execute new scenarios. Modified scenarios as required.

- Ran initial "get acquainted" sessions on the Version 0 World Wide Web Gateway.

b) Issues/Concerns

- None.

c) Subcontractor Performance

- CTA is the lead for this task. Their progress has been very good.

d) Planned Activities

- Use X-Runner to execute V0 test scenarios. Test the WWW interface for the V0 IMS.

- Initiate scenario development for Version 0 World Wide Web Gateway analysis.

- Support X-Runner installation and configuration efforts.

- Support program meetings/briefings as required.

Appendix B and C
have been removed
due to proprietary content.

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